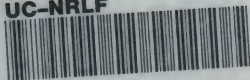


S
471
N5A3

UC-NRLF



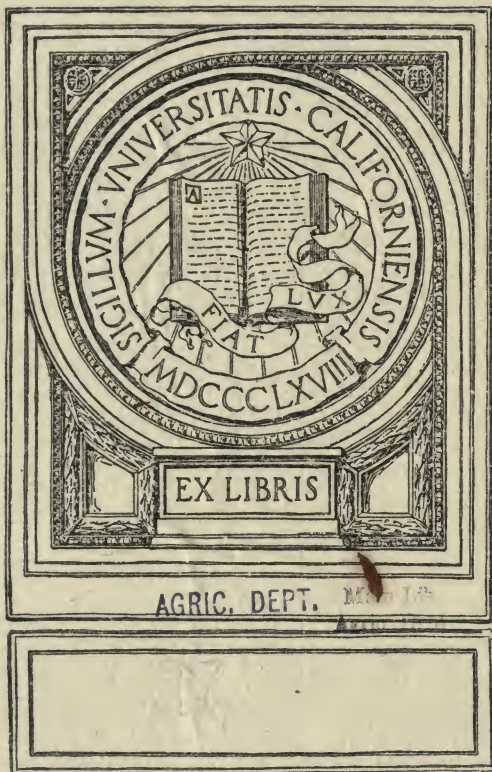
\$B 303 033

NEW ZEALAND
DEP'T OF AGRICULTURE

AGRICULTURE IN
NEW ZEALAND

YB 45394

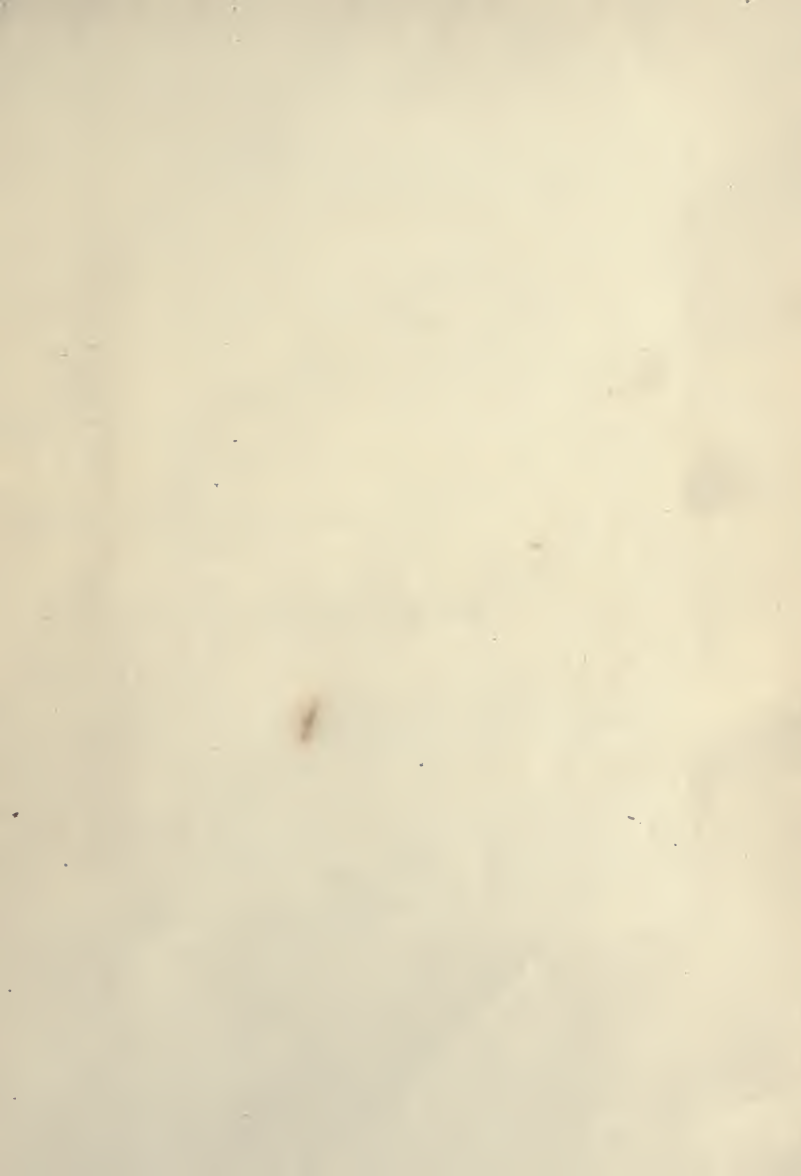
UNIV. OF CAL.
EXPT. STA. LIB.



EX LIBRIS

AGRIC. DEPT.

12





Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

5474
New Zealand Department of Agriculture.

JOHN D. RITCHIE, *Secretary.*

AGRICULTURE

IN

NEW ZEALAND.

(SECOND EDITION.)

HON. ROBERT McNAB, MINISTER FOR AGRICULTURE.



WELLINGTON.

BY AUTHORITY: JOHN MACKAY, GOVERNMENT PRINTER.

1908.

New Zealand Department of Agriculture.

HON. ROBERT McNAB, Minister for Agriculture.

Secretary for Agriculture:

JOHN D. RITCHIE.

DIVISIONS, CHIEF OFFICERS, AND FUNCTIONS.

LIVE-STOCK and AGRICULTURE—E. Clifton.

Advice on Pastoral and Field-crop matters generally—Direction of Experimental Farms—Supervision of the Inspection of Live-stock, Dairies, Slaughterhouses, Rabbits, Noxious Weeds, and Fertilisers, and of the Registration of Live-stock Brands—Compilation of Statistics relating to Cultivation, Production, Live-stock, and Exports.

DAIRYING—D. Cuddie.

Instruction in Butter and Cheese making and Dairy-farming—Grading of Dairy-produce for Export.

VETERINARY SCIENCE—J. A. Gilruth, M.R.C.V.S., F.R.S.E.

Investigation and Treatment of Diseases of Animals—Inspection of Meat.

BIOLOGY and HORTICULTURE—T. W. Kirk, F.L.S.

Agricultural Botany—Investigation and Treatment of Diseases of Vegetation—Instruction in Production and Preservation of Fruit—Instruction in Bee-farming.

VITICULTURE—R. Bragato.

Instruction in Grape-growing and Wine-making.

POULTRY INDUSTRY—D. D. Hyde.

Instruction in Poultry-raising—Supervising and Grading of Exports of Poultry and Eggs.

CHEMISTRY—B. C. Aston, F.C.S.

Analysis of Soils, Fertilisers, &c.

FIBRE INDUSTRY—C. J. Fulton.

Instruction in Milling of Hemp—Grading of Fibre.

PUBLICATIONS—G. Bisset.

Publication and Distribution of Bulletins, Leaflets, and Reports upon the Operations, Experiments, and Investigations of the Department, and Information regarding the various Branches of Agriculture.

New Zealand Department of Agriculture.

JOHN D. RITCHIE, *Secretary.*

AGRICULTURE

IN

NEW ZEALAND.

(SECOND EDITION.)

HON. ROBERT McNAB, MINISTER FOR AGRICULTURE.



WELLINGTON.

BY AUTHORITY: JOHN MACKAY, GOVERNMENT PRINTER.

1908.



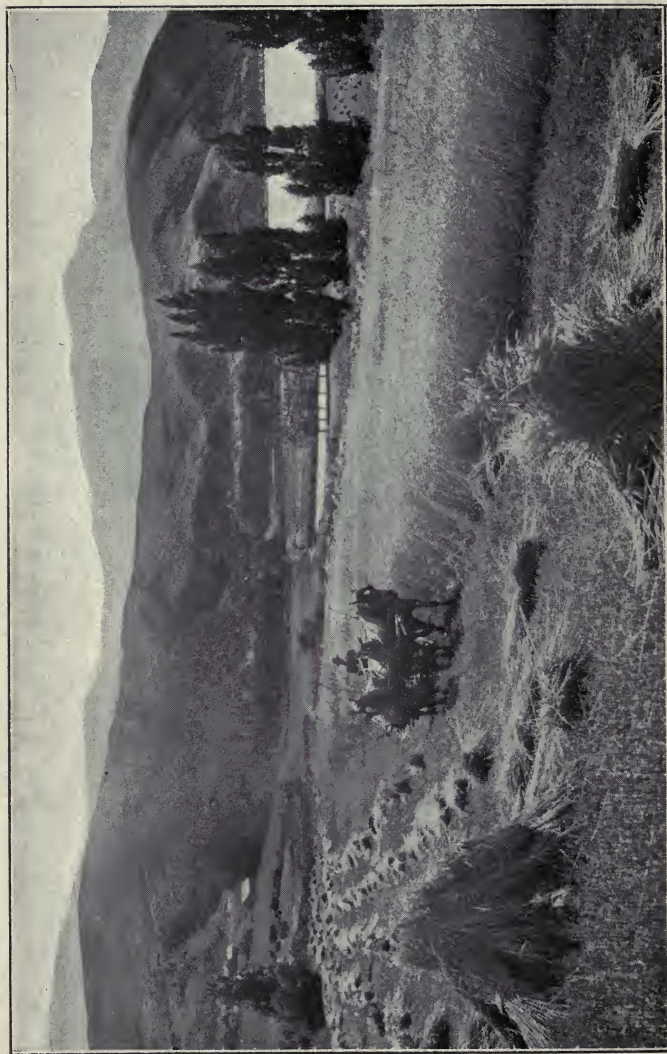
SKETCH MAP OF NEW ZEALAND
Showing Provincial Districts and Chief Towns.



A NEW SETTLER'S HOMESTEAD, SOUTH ISLAND.

[Wheeler, photo.]

Ag. in N.Z.]



FARM SCENE, SOUTHERN OTAGO.

Ag. in N.Z.]

AGRICULTURE IN NEW ZEALAND.

NEW ZEALAND is essentially an agricultural country, with peculiar advantages for the raising of stock. The yields of grain are the highest in the world, with the sole exception of those of Great Britain, but so successfully are sown grasses and forage-plants grown, and so excellent is the pasturage of the native grasses, that the production of wool, meat, and dairy-produce has proved more profitable than grain-growing, and the Dominion's chief products and exports consist of (1) wool, (2) frozen meat, and (3) dairy-produce; while the cultivation of wheat and oats has been reduced to the limits of domestic requirements. The total value of exports for the year ending 30th September, 1907, was £19,687,573, of which agricultural products figured to the amount of £17,000,475, or 86·35 per cent. of the total exports. The agricultural produce of the Dominion for the same year was of an estimated value of nearly £25,000,000 sterling, not taking into consideration the increase of live-stock.

The area of the Dominion is 104,751 square miles, or 67,040,640 acres, of which 28,000,000 acres are agricultural land, and 27,200,000 acres pastoral land. The area in occupation in October, 1907, was 37,564,278 acres, of which 15,330,189 acres were in cultivation or in sown grasses. The area actually in cultivation was 6,831,798 acres, of which 944,250 acres were in corn and pulse crops, 765,342 acres in green crops, 4,958,233 acres in grasses on ploughed land, 114,701 acres in orchards, plantations, gardens, &c., and 49,272 acres in fallow. The area in sown grasses on unploughed land was 8,498,391 acres, and native grasses were estimated at 22,234,029 acres. The wide area of country still unoccupied consists to a very considerable extent of land in native grasses or bush, capable of carrying large flocks of sheep and herds of cattle.

There were in the Dominion on the 31st October, 1907, 73,367 holdings of 1 acre or over in extent. There is an increasing trend towards small or moderate-sized holdings and more intense cultivation.

The forests of New Zealand are under the charge of the Forestry Branch of the Lands and Survey Department, in whose report

particulars regarding them are given. Their produce is not included in the foregoing figures.

PRODUCTION AND EXPORTS.

The value of the production for the year 1907 of agricultural, pastoral, and dairy products and phormium fibre is estimated at £25,000,000. The exports of those products during the same period amounted in value to £17,000,475, the following being the principal items:—

		Value. £
Wool (lb.)	164,006,579	7,429,727
Sheep-skins and pelts (number)	6,972,247	786,438
Frozen meat (cwt.)	2,371,096	3,308,378
Preserved and salted meats (cwt.)	56,669	117,326
Tallow (cwt.)	415,720	560,269
Hides (number)	166,126	174,934
Butter (cwt.)	335,046	1,654,991
Cheese (cwt.)	203,380	571,350
Hemp (tons)	29,040	864,280
Grass and clover seeds	80,336

It is estimated that during the year 6,000,000 lb. wool and 2,250,000 sheep and lambs, besides oxen and pigs, were consumed in the Dominion. The consumption of grain, butter, cheese, and other products is also probably greater per head of the population than in any other country.

As has been premised, the bulk of the agricultural land of the Dominion is put to a more profitable purpose—in stock-raising for meat and dairying purposes—than the growing of cereals, although the soil and climate are in the highest degree suited for the latter purpose. The following are the actual average yields per acre for the whole Dominion for the ten years 1899–1908:—

Wheat (bushels)	32
Oats (bushels)	40
Barley (bushels)	35
Maize (bushels)	46
Rye (bushels)	27
Peas (bushels)	31
Beans (bushels)	33
Potatoes (tons)	6
Rye-grass (bushels)	24
Cocksfoot (pounds)	166

SOIL.

The soil of New Zealand is of great natural fertility and of much variety.

The North Island is, as a whole, hilly and in parts mountainous in character, but with large plains and numerous valleys of land suitable for agriculture, the area of agricultural land in this Island being estimated at 13,000,000 acres. The area of purely pastoral land is estimated at 14,200,000 acres. A large quantity of both classes of land is still in the native bush or swamp state, but clearing and draining are rapidly progressing.

The South Island is intersected from north to south, along almost its entire length, by the range of mountains known as the Southern Alps. The northern part of the Island is generally hilly or mountainous, and the western portion of the southern part is also mountainous; but the central area, comprising almost the whole of the Province of Canterbury east of the Southern Alps and the eastern part of the Province of Otago, is almost entirely level country, while the hills are capable of cultivation to their highest point. The mountains throughout the Island are to a considerable altitude well grassed and afford grazing, except in winter, for large flocks of sheep. The west coast of the Island consists largely of native forest, but extensive agricultural areas are being developed. The land in the South Island is estimated to comprise 15,000,000 acres available for agriculture, 13,000,000 acres suitable for pastoral purposes, and 9,000,000 acres of barren land and mountain-tops.

Throughout the Dominion the fertility of the soil has been increased in a remarkable degree by cultivation and grazing by stock. Areas of land which under former systems carried only one sheep to the acre have been by good cultivation and judicious cropping rendered capable of carrying five sheep per acre. This fact should be borne in mind when the advance in the price of land is being discussed.

CLIMATE.

New Zealand extends from the 34th to the 47th degree of south latitude, and thus enjoys a climate ranging from subtropical to temperate. The climate is for the most part equable. The range of temperature is not great, the summer heat not being excessive

nor the winter cold intense. The rainfall may be described as regular, excessive precipitation on one hand and prolonged absence of rain on the other being seldom experienced. The winters are short, the utmost duration of the period during which grass ceases to grow being about three months, while in favourable seasons, except in the extreme south, grass, roots, and grain crops grow without interruption. Snow, except on the mountain-tops, seldom is heavy or remains long on the ground. Abundant sunshine is enjoyed not only in the summer, but also in the winter, it being computed that the total annual duration of sunshine is 20 per cent. longer in New Zealand than in England. Indeed, the worst that can be said of the New Zealand climate is that while it has plenty of summer in winter it frequently has touches of winter in summer.

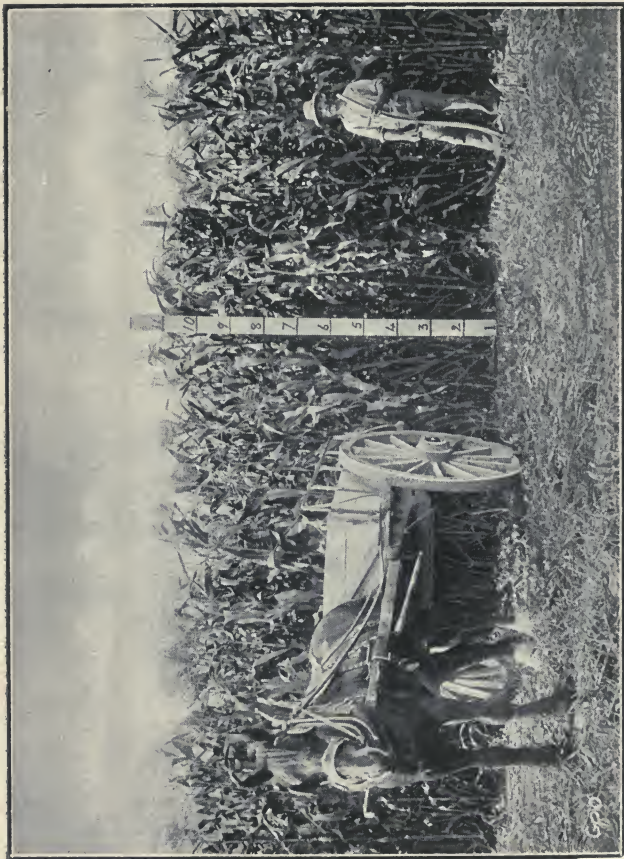
According to an Imperial official publication based on four years' observations, the highest mean temperature for the Dominion was 78° and the lowest 33°.

The New Zealand Meteorological Office gives the following particulars taken from the records of representative stations for 1905 (a normal year):—

—	Mean Temperature.			Total Rain-fall.	Days' Rain.	Prevailing Wind.
	Max.	Min	Mean.			
	Deg.	Deg.	Deg.	In.		
Auckland	63·6	51·9	57·7	39·82	173	S.W.
Meeanee (Hawke's Bay)	63·9	45·5	54·7	49·78	138	S.W.
Moumahaki (Taranaki)	60·7	47·0	53·8	44·43	163	W.
Levin (Wellington) ..	62·1	44·6	53·3	38·50	149	N.W.
Lincoln (Canterbury)	61·1	44·1	52·6	28·79	152	N.E. S.W.
Hokitika (Westland) ..	63·0	45·4	54·2	93·83	176	S.W., E.
Dunedin (Otago) ..	55·2	42·9	49·0	53·84	180	S.W.

The North Island had in 1905 a mean temperature of 55·9°, and a total rainfall of 49·34 in., on 168 days; the South Island had a mean temperature of 51·9°, with a rainfall of 47·91 in., on 161·5 days.

The abundance of water is one of the Dominion's great natural advantages. There are few localities in which clear running streams



MAIZE, WELLINGTON DISTRICT.

Ag. in N.Z.]



A FLOCK OF CORRIEDALE EWES AND LAMBS.
Ag. in N.Z.]

are not numerous and permanent, and the parts which are not so blessed can be watered by artificial streams brought from the upper waters of the rivers, while in many large areas, such as the Canterbury Plains, artesian water can be obtained at no great depth, of unrivalled purity and of very low temperature.

THE PROVINCES.

The Dominion is divided into eight provincial districts, but laws and administration are uniform. The chief characteristics of the several provinces from an agricultural point of view may be briefly noted.

AUCKLAND, the most northern province is, except in its southern part, subtropical, and the vegetation is of corresponding nature. Subtropical fruits, such as the orange, lemon, lime, olive, and grape-vine, and plants, such as tobacco, sorghum, hemp, and ramie or rhea, flourish with but ordinary care; while apples, pears, and hardy fruits generally, grasses, clovers, maize, potatoes, swedes, and most other forage-crops the cultivation of which is generally regarded as adapted only to the temperate zone, are grown with great success. The dairy industry, as is natural under such conditions, is of great importance and rapidly extending, even into the far north. The grazing of sheep and beef cattle, the production of fruit, and the conservation and preparation for export of the New Zealand hemp (*Phormium tenax*) are also important industries.

TARANAKI, to the south-west of Auckland, is especially suited for the raising of cattle, and it is distinctively a dairying province. Grasses, forage-plants, and roots grow with the greatest luxuriance, the soil being of a most fertile nature. New Zealand hemp is produced in considerable quantity, and there is a large production of grass-seeds of various kinds.

HAWKE'S BAY is to the south of Auckland, on the east coast. It is mainly pastoral, its pastures of native grass and those in which the indigenous grasses have been supplemented by surface-sowing with imported varieties providing most excellent grazing for sheep and cattle. Large areas, however, are excellently suited for arable farming, which is extending rapidly. In the south-western part of the province, which was originally native bush, dairying is carried on with success, and in the province generally there is a large production of New Zealand hemp. The export of wool and frozen

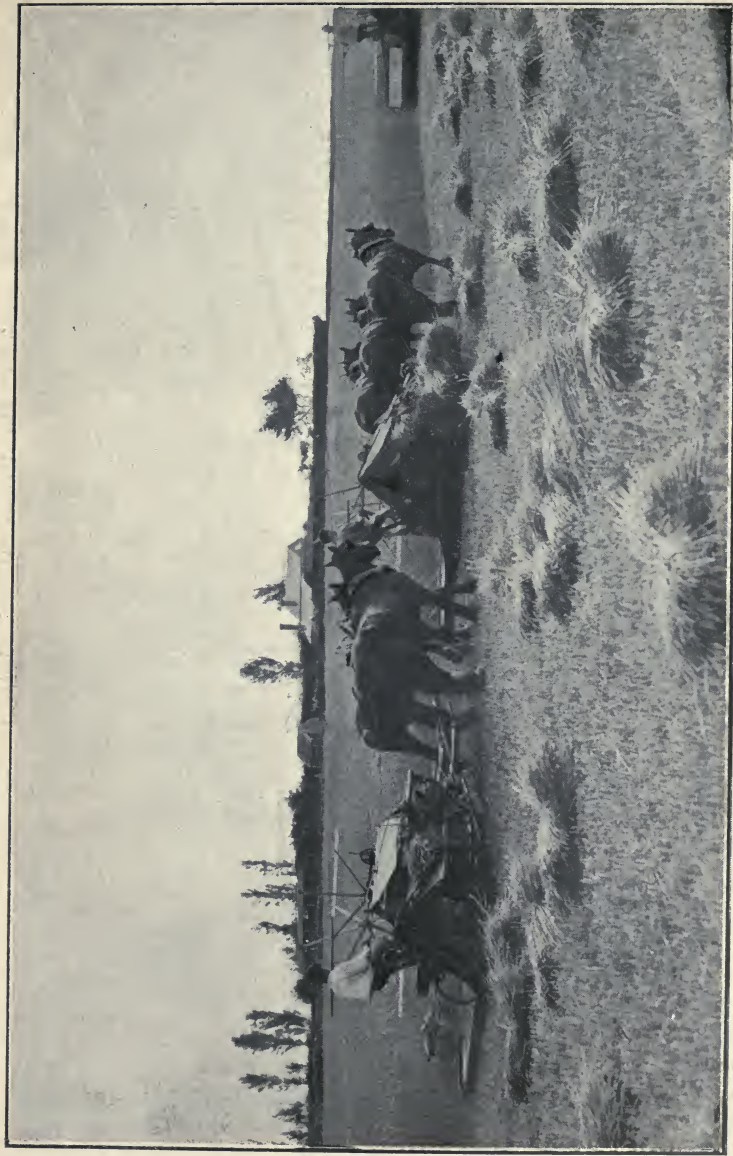
meat is, however, the chief source of wealth. Fruit-growing and wine-making and the raising of seeds of various kinds are industries of considerable and growing magnitude.

WELLINGTON, which comprises the whole of the southern part of the North Island, is also mainly a pastoral province, the adaptability of a large quantity of its rich land for agricultural purposes having been availed of to a comparatively limited extent. The natural and surface-sown pastures have hitherto proved sufficient for the maintenance of a large stock of cattle and sheep, producing important contributions to the annual exports of wool, frozen meat, butter, and cheese. New Zealand hemp also is extensively produced in the province.

NELSON and MARLBOROUGH are the north-western and north-eastern provinces respectively of the South Island. They are pastoral in character, a large proportion of their area being hilly or mountainous, and in its native state. The grazing is principally by sheep, though many localities are admirably suited for dairying. Fruit-growing is an important industry in the Nelson district, and is capable of great development; and in the same district hops are grown in quantity, both for colonial use and for export. The principal barley-fields of the Dominion are in the Blenheim district, while there are also many in the neighbourhood of Nelson; exports to Australia absorb a large proportion of the production. Seeds are extensively produced, the growing of seed-peas for export to all parts of the world being a specialty of these districts.

WESTLAND, to the south of Nelson, on the west coast, is in its infancy as regards agriculture, but has great possibilities, large areas of fertile soil being in course of settlement, and the climate having many advantages.

CANTERBURY is generally agricultural, the proportion of land under cultivation being larger than in any of the other provinces. The province is the Dominion's main wheat-field, the whole of the Canterbury Plain, extending 150 miles from north to south, and about forty miles from the sea-coast to the foot of the hills which branch from the Southern Alps, being available for grain-growing, and producing abundant yields. Nevertheless, Canterbury is specially a "sheep" province, with this difference from most other districts of the Dominion: that a very large proportion of the flocks are kept on arable land, part of which is devoted to the raising of forage and root crops (principally, oats, rape, and turnips) for kcep for



REAPING WHEAT: YIELD, 51 BUSHELS PER ACRE.

Ag. in N.Z.]



COCKSFOOT GRASS: HARVESTING THE SEED.

Ag. in N.Z.]

the sheep during winter and for expeditious fattening at all seasons. Considerable numbers of sheep are in most seasons brought from other provinces to Canterbury to be fattened, the dry climate and naturally well-drained soil being eminently conducive to this process, and the quality of the lamb and mutton produced being of the highest excellence. The export of frozen meat from the ports of Lyttelton and Timaru for the year ended 30th September, 1907, included 2,225,864 carcasses of mutton and lambs, which bear a remarkable proportion to the number of sheep in Canterbury at the time of taking the latest returns—30th April, 1907, 5,147,340. Dairying receives considerable attention, several districts being well suited for this branch of farming. The production of cocksfoot-grass seed is an industry almost peculiar to Banks Peninsula, where in a favourable season a quantity sufficient to supply the requirements of the whole world could be grown. Seeds of other grasses, clovers, peas, &c., are also largely grown for local sowing and for export. New Zealand hemp is an important product, and fruit-growing is steadily extending.

OTAGO (with which is included the formerly separate Province of Southland) is also a district in which general agriculture is predominant, though a very large area of land of all classes is still in its native state and used only for grazing sheep. The production of wool and meat takes first rank in the rural industries of the province; dairying, for which most of the agricultural land is particularly suitable, occupies a prominent position. On the fertile level and undulating lands of Southland oats are produced in vast quantities, though this crop is giving way to the keeping of sheep and lambs, with the object of producing meat for export, for which in many localities the conditions are very favourable. Wheat is grown successfully to a high altitude, as well as on the lower lands of the northern and central districts, and the quality of the grain is exceptionally fine. Barley-growing is a special industry of the Lake district. Native hemp is produced in almost every part of the province. Central Otago is a district which claims special notice. Its clear, dry climate, with almost unbroken sunshine during the summer, and the fertility of its soil give it unique advantages for fruit-growing, and cherries, apricots, peaches, plums, berries, pears, and apples are produced there to perfection during a period extending from December to May. Grain of all kinds and vegetables in profusion are also grown.

Chatham Islands, about five hundred miles to the east of New Zealand, and Auckland Islands, about three hundred miles to the south, are settled by sheep-farmers. The Cook Islands, in the tropics, produce fruits in great variety, and the industry is capable of great expansion.

RURAL INDUSTRIES.

THE PASTORAL INDUSTRY, which from the first settlement of the Dominion has been the chief source of wealth, is gradually but surely becoming merged into mixed farming. The change is due to the influence of the frozen-meat trade. Until the establishment of this trade the land was held in large blocks on which sheep were grazed chiefly on the native pasture, and the wool and tallow, and to some extent preserved meat, were the marketable products. Now the agricultural land is divided into farms, and sheep are grazed in flocks of smaller size, the number of flockowners having increased from 9,149 in 1886 (four years after the trade was inaugurated) to 18,423 in 1905, while during the same period the average number of sheep in a flock has decreased from 1,659 to 1,038. The total number of sheep in the Dominion has increased from 12,190,215 in 1881, when the killing of sheep for freezing was begun, to 20,983,772 in 1907, notwithstanding that during the period 56,500,000 carcasses of sheep and lambs and millions of legs of mutton have been exported from the Dominion in the frozen state, besides which many millions of sheep and lambs have been canned or boiled down for tallow, and a large number exported alive. Many sheep are fattened on natural grasses or on land which has been sown without being ploughed; but the greater number of the sheep and practically the whole of the lambs are fattened on cultivated grasses and forage-crops; and to supply this fodder and fatten the greatest possible number of lambs for export at from four to eight months old is the first object of the majority of farmers. The soil and climate of the greater part of the Dominion are in the highest degree favourable for sheep-farming, and the carrying-capacity of the land has been greatly increased by the cultivation and manuring which have been applied in the raising of the root and forage crops and the grain crops which have been grown in rotation. It is safe to say that in some districts the carrying-capacity of the land has been increased fivefold, and it is almost everywhere capable of being further en-



LINCOLN EWES AND LAMBS.

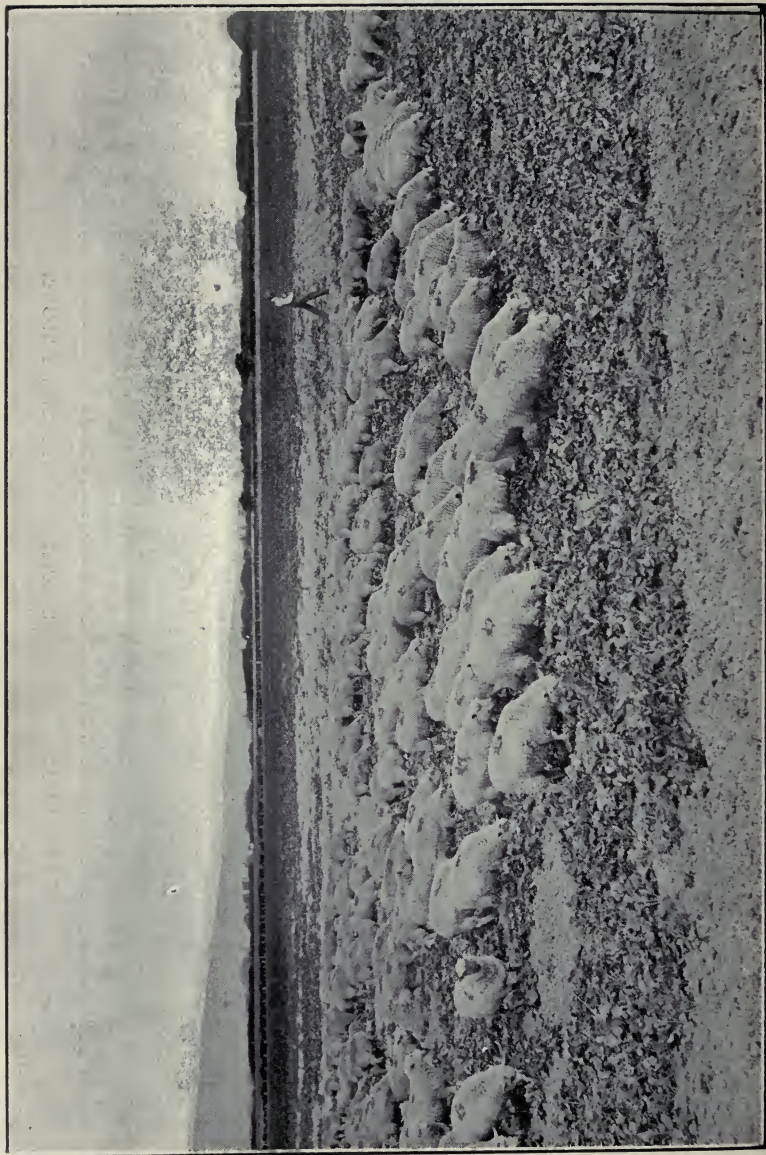
Ag. in N.Z.]



LINCOLN RAM HOGGETS.



ENGLISH AND BORDER LEICESTER RAMS FOR EXPORT.



LAMBS FATTENING ON RAPE.

Ag. in N.Z.]



FAT LAMBS FOR EXPORT: AT FREEZING-WORKS.

Ag. in N.Z.]



LAMB AND MUTTON FOR EXPORT: IN FREEZING-WORKS.

larged. Sheep need no protection from the elements more than is provided in exposed situations by live fences; they are free from disease, and the average rate of increase by lambing for the whole Dominion ranges from 75 per cent. on exposed mountainous country to 110 per cent. in farm-flocks. In a good season under favourable conditions increases of 130 to 140 per cent., and even higher, are frequently obtained in small flocks. The high percentage of increase, together with the low cost of fattening, renders sheep-farming a very lucrative business. The wool also is an important factor. The average weight of the fleece may be taken at 6 lb. for merino and 8 lb. for crossbred sheep. Merino sheep constitute little more than 10 per cent. of the Dominion's flocks, but there is an infusion of merino blood in most of the sheep of the Dominion, though many have become closely graded to British breeds, or are crosses of these. The English and Border Leicesters are in highest favour in the South Island, and the Lincoln and Romney Marsh in the North Island, the last-mentioned being also extensively used for bleak and exposed situations in other parts of the Dominion. The Southdown and the Shropshire are specially used everywhere but in the south of the South Island for the production of lambs for early fattening.

All the leading British breeds have been introduced into the Dominion, and continuous importations are made of rams and ewes of the highest class. Indeed, New Zealand flockmasters are noted for purchasing of certain breeds the most perfect specimens obtainable in the United Kingdom, and many of the pedigree flocks are now of merit scarcely less than that of the Old Country flocks from which they are descended. Indeed, some breeds of sheep thrive in New Zealand in a manner which results in a degree of perfection seldom obtained in Home flocks. An important trade in purebred sheep for breeding purposes has been established with Australia and several parts of South America, the natural conditions under which New Zealand sheep are reared giving them a great advantage over artificially reared sheep when introduced into the flocks of other countries. At the same time there is always an ample selection of excellent sheep for breeding purposes available at moderate prices to the sheep-farmer of the Dominion.

The frozen-meat industry has, as has been premised, revolutionised agriculture in New Zealand. It was established in the year 1882, and the export rapidly expanded from 1,707,328 lb.

in that year to 265,562,752 lb. in 1907, and the output is capable of further great development. Sheep and lambs have from the inception of the trade predominated very largely in the export, and for the last four years the lambs exported have exceeded the sheep in number.

The system of sheep-farming may be said to begin with the large flocks on the pastoral country, from which, as a general practice, the wether lambs are sold to agricultural farmers or graziers to be fattened, and the ewe lambs are kept on until the autumn of the following season, when the surplus is sold for breeding purposes, chiefly to holders of the better class of pastoral land or large agricultural farms. These in turn pass on the ewes as they become aged to the smaller farmers, who provide them with cultivated fodder and obtain from them one or two crops of lambs, and then fatten them for the butcher.

The fat sheep and lambs are generally sold, either on the farm or in the public market, to exporters, although many large producers export the meat to the London market for sale there on their account. The freezing companies will undertake for owners the charge of sheep, lambs, and cattle from receipt at the freezing-works until sale of the meat, wool, &c., in London (or elsewhere) and payment of proceeds, at a consolidated rate covering every charge; and there are also numerous firms and companies who will undertake the same services, paying the freezing companies for slaughtering, freezing, &c., and the shipping companies for carriage. All meat for export (and most of that for local consumption) is slaughtered under the inspection of veterinary surgeons holding the degree of M.R.C.V.S., London, appointed by and under the control of the Government, and there is no authenticated case of any diseased meat having reached the market from New Zealand. The meat is graded by the freezing companies into various classes, according to quality and weight, and these grades are so well known and reliable that large transactions in meat of stated qualities are concluded by cable, often for shipments to extend over a period of several months.

There are in the Dominion 27 meat-freezing works, employing about four thousand hands, and having an output for the year 1907 valued at £6,000,000.

Besides their primary occupation of meat slaughtering and freezing, there are conducted at most of the freezing-works the

industries of meat-canning, fellmongering, wool-scouring, tallow and oleo refining, glue and gelatine making, manure-manufacture, and the cold-storage of poultry and eggs.

The grazing of cattle forms, compared with sheep-farming, a small part of the agricultural economy of New Zealand, but the value of the dairying industry prevents its being unimportant. There are many large herds of beef-cattle, mostly in the North Island, and of the Shorthorn breed; but cattle are found and thrive in all parts, and besides Shorthorns there are herds of the highest class of the Hereford and Aberdeen-Angus breeds. Red-polled, Devon, and Highland cattle have also been introduced. The export of frozen beef in the year ending the 30th September, 1907, was 361,211 cwt., of a value of £436,157. New Zealand beef is of superior quality, and it is anticipated that when the process of carrying it oversea in the chilled state is perfected there will be a large expansion of the grazing industry in the Dominion.

The important relation which DAIRYING bears to the raising of cattle is shown by the fact that of the total cattle stock of 1,816,299 head, no fewer than 600,363 are dairy cows and heifers. Dairying, like grazing for beef, is of more importance in the North Island than in the South. Most of the cows are crossbred, chiefly between the Shorthorn and the Ayrshire, but there are many pure-bred herds of these breeds, as well as of the Jersey, and a few of the Holstein, Kerry, and Dexter-Kerry; the Jersey and Holstein also are extensively used for crossing for dairy purposes. The annual production of butter in the Dominion is estimated at 550,000 cwt., and of cheese at about 250,000 cwt. (In the season 1907-8 there has been a considerable decrease in the production of butter, and a corresponding increase in that of cheese, the prospects of the market for the butter being more attractive.) The exports for the dairying season 1906-7 comprised 335,046 cwt. butter, valued at £1,654,991; and 203,380 cwt. cheese, valued at £571,350: a total value exported of £2,226,341. There were registered on the 30th June, 1907, 212 butter-factories (creameries) with about 500 skimming-stations, 109 cheese-factories, 361 private dairies making butter, 42 private dairies making cheese, and 128 packing-houses (for farm-made butter). Most of the butter and cheese factories are operated on co-operative lines, the factories being owned by the milk-suppliers, and the proceeds of the butter and cheese made,

less the cost of manufacture and incidental expenses, being divided amongst the suppliers according to the quantity of butter-fat contained in the milk delivered by each to the factory, progress-payments being made monthly. The great bulk of the butter is made in central factories fed by branch skimming-stations in the surrounding districts; by this means economy of production and uniformity of product are secured. The butter and cheese are either sold for the season at a fixed price, or consigned to the London or other market for sale, a minimum price in the latter case being frequently guaranteed by the consignee. The produce is graded, free of charge, by officers of the Dairy Division of the Department of Agriculture, according to a defined scale of points; butter or cheese scoring 88 points or upwards being first grade, under 88 points and not less than 80 points second grade, and under 80 points third grade. The maximum is 100 points. The system of Government grading has unquestionably had the greatest influence in placing New Zealand produce in its high position in the markets of the world.

The Government dairy-produce graders' certificates are accepted in the British markets as final, as regards both quality and weight, and the largest contracts contain no further stipulation than that the produce shall receive a certain number of points or be of first grade.

New Zealand cattle have a high level of healthiness, and those diseases which are most prevalent have become so chiefly from inexperience in management on the part of the farmers, and are being overcome by observance of the advice and instruction of the officers of the Veterinary Division of the Department of Agriculture.

Many of the butter-factories run all the year round, and few have a close season exceeding three months' duration. Cheese-making is suspended during the winter months; but many factories have dual plants and make butter or cheese according to the demand of the market or the period of the year.

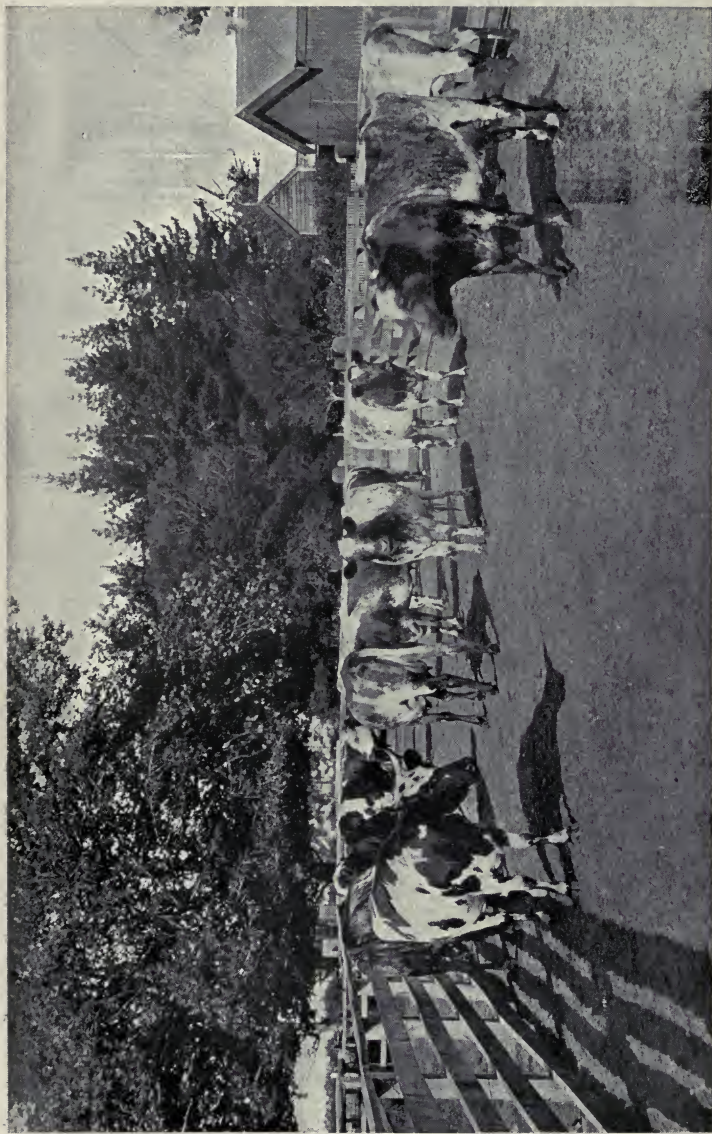
The manufactures of Stilton cheese, condensed milk, and dried milk are carried on successfully on a progressing scale.

PIG-KEEPING is rarely carried on systematically except in conjunction with dairying, although the natural and other advantages of the Dominion for this branch of farming are unequalled. The products are of the highest quality and are in great request abroad;



A GROUP OF SHORTHORN CATTLE.

Ag. in N.Z.]



A DAIRY HERD.

Ag. in N.Z.]



A DAIRY COW : HOLSTEIN CROSS.

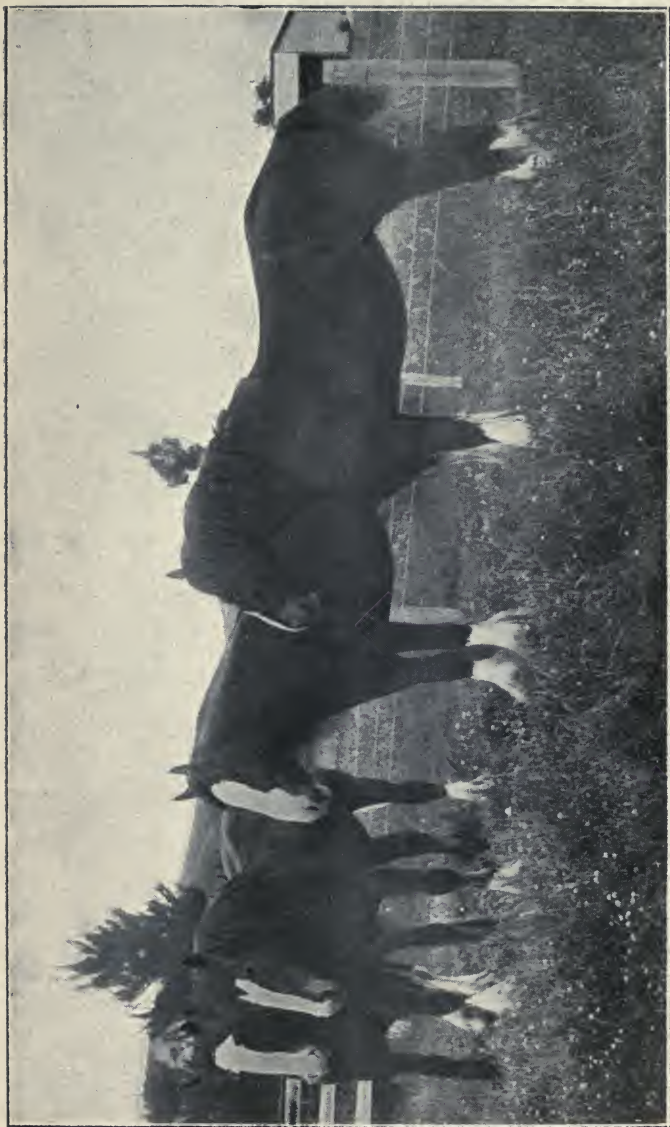
1905-6-299	days in milk,	12,167 lb.	milk,	450·1 lb.	butter-fat.
1906-7-299	„	13,091 lb.	„	497·4 lb.	„

Ag. in N.Z.]



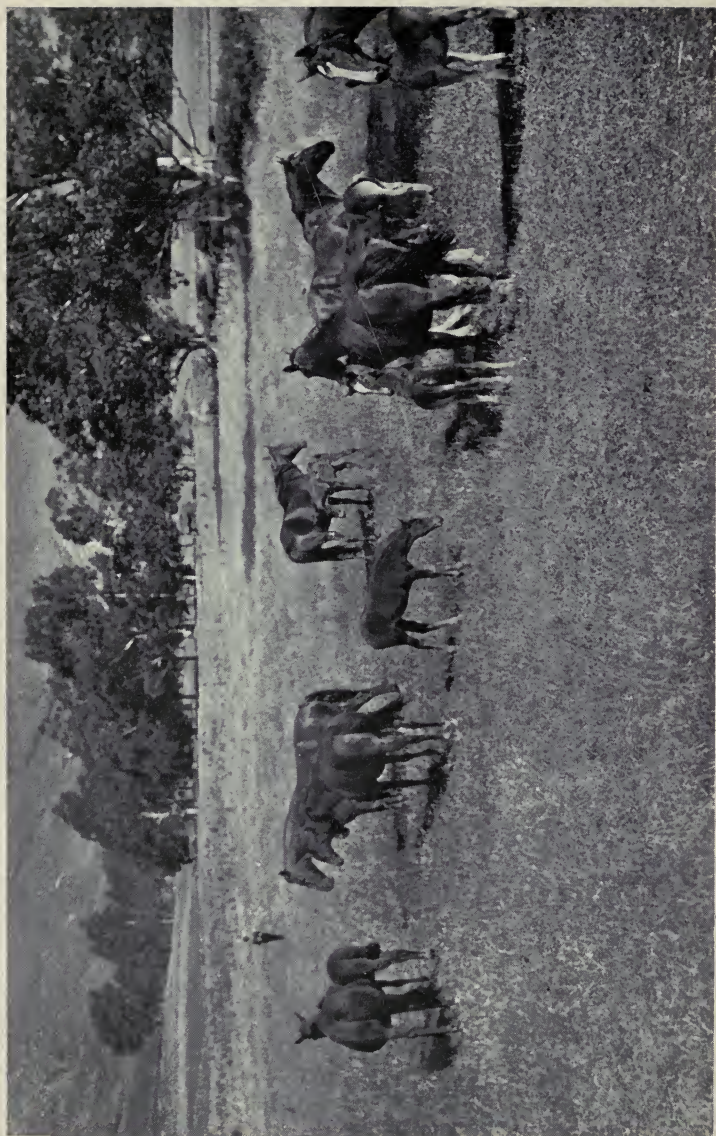
A DAIRY FACTORY: FARMERS DELIVERING MILK.

Ag. in N.Z.]



CLYDESDALE MARES.

Ag. in N.Z.]



MARES AND FOALS.

but the export trade languishes for want of sufficient supplies. A good business in frozen porkers has been established with the United Kingdom. The number of pigs in the Dominion in October, 1907, was 241,128. The breed most generally kept is the Berkshire, but the Middle and Small White, the Tamworth, and the Large Black (Devon) are also bred.

HORSE-BREEDING is an important industry, for which almost every part of the Dominion is suitable. The heavy draught stock are almost entirely of the Clydesdale breed, but the Shire horse and the Suffolk Punch have influential patrons. New-Zealand-bred Clydesdales are in very high favour in Australia, both for breeding and for working purposes, and the export in that direction is of some magnitude. The breeding of blood stock for racing purposes is of less importance than formerly, but the Dominion continues to produce racehorses which compete successfully in other countries. Increased attention has lately been given to the production of good saddle and driving horses, both for local use and for export, and the Department of Agriculture has imported a number of suitable thoroughbred sires to assist in this enterprise. The American trotting-horse has been acclimatised, and his great speed is transmitted to his stock in this country. The number of horses of all kinds in the Dominion in October, 1907, was 353,257.

GRAIN is grown to a much smaller extent than formerly, farmers having found greater profit in the production of fat lambs for export. The wheat lands of Canterbury and North Otago are not excelled in the world, and the Southland soil and climate are similarly remarkable for heavy crops of oats, while barley of the finest quality is grown as a special industry in the Blenheim, Nelson, and Lake Wakatipu districts. All kinds of cereals are also successfully grown, though on a smaller scale, in most other parts of the Dominion. The production of wheat has lately been little in excess of local requirements, but oats and barley are still important articles of export. Peas are grown extensively for seed as well as for food purposes, large quantities being exported to the United Kingdom, America, and other parts of the world. Beans, linseed, and grass and clover and several other farm seeds are also produced in considerable quantity. The export of grass and clover seeds in the year ending the 30th September, 1907, was valued at £80,336. The cocksfoot-seed industry is unique in that the grass has been merely surface-sown, chiefly on hilly land, and is closed

against grazing for only a few weeks before the seed ripens, the reaping, threshing, and winnowing being done by hand, and the seed dressed in town or port stores by specially devised machinery.

NEW ZEALAND HEMP (*Phormium tenax*) is a natural product of great value. It has proved amenable to cultivation, and considerable areas are being planted for the production of fibre. The Department of Agriculture has formed experimental plantations with the view of ascertaining the best varieties to grow, and there is every prospect that increased attention will be given to phormium as a farm crop. The cultural treatment is simple and inexpensive, and the returns from the yield are highly profitable. The plant may be said to grow in all parts of the Dominion. The fibre is exported to Europe, America, and Australia, and chiefly used for the manufacture of ropes and twine. The Maoris have methods of making from the fibre fabrics of the fineness of silk, but the processes are too tedious to be commercially practicable. The hemp as prepared for shipment is graded by the officers of the Department of Agriculture into the following classes: "Superior," 90 to 100 points inclusive; "fine," 80 to 89 points; "good fair," 70 to 79 points; "fair," 60 to 69 points; "common," 50 to 59 points; "rejected," under 50 points. In the year 1906-7, 29,040 tons, valued at £864,280, were exported, and a large quantity was manufactured locally into twine and cordage.

FRUIT-GROWING is an industry for which many parts of New Zealand are peculiarly suited. It may be generally stated that all fruits which are grown in Great Britain and North America can be successfully grown in this country, and many, such as apples, pears, and the hardy berries, attain special excellence. Grapes ripen in the open air as far south as Central Otago, and peaches and apricots in an even colder latitude. An export trade in apples has been initiated, and extensive orchards have been and are being planted with the view of developing this business; while the preserving of fruits in various forms is being encouraged and assisted by the Department of Agriculture, and promises to become an important industry. A collection of New Zealand apples sent to the Exhibition of the Royal Horticultural Society of England, in London, in June, 1906, gained the highest praise of the judges, the Press, and the public; and exhibits of canned and preserved fruits from Hawke's Bay, Nelson, and Otago, at the same show, were pronounced to be

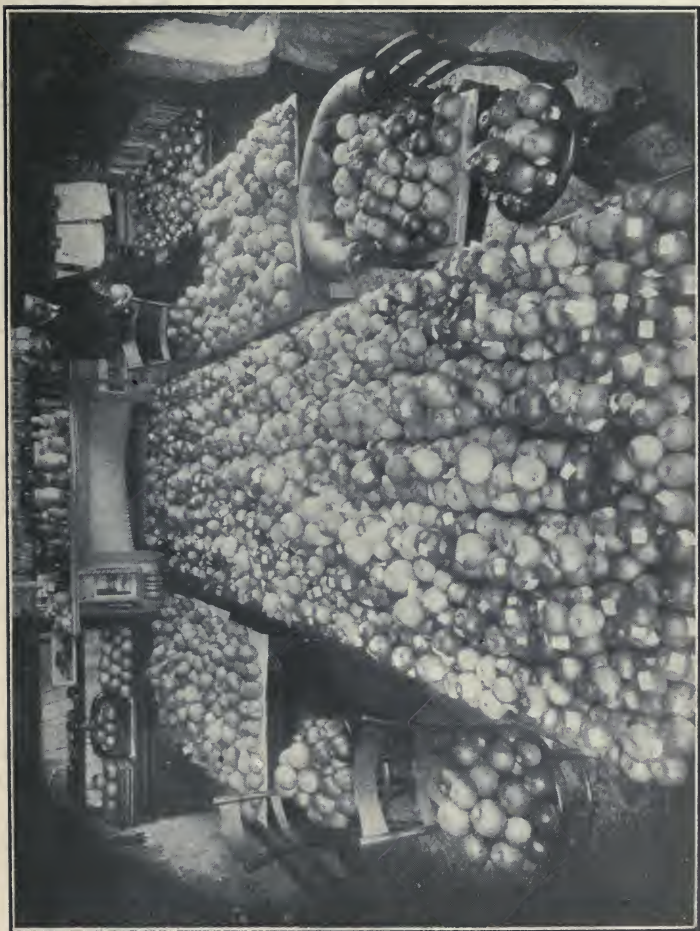


NEW ZEALAND HEMP (*Phormium*), UNCULTIVATED: TRAMWAY TO CARRY LEAVES TO MILL.
Aq. in N.Z.]



A VINEYARD, AUCKLAND DISTRICT.

Ag. in N.Z.]



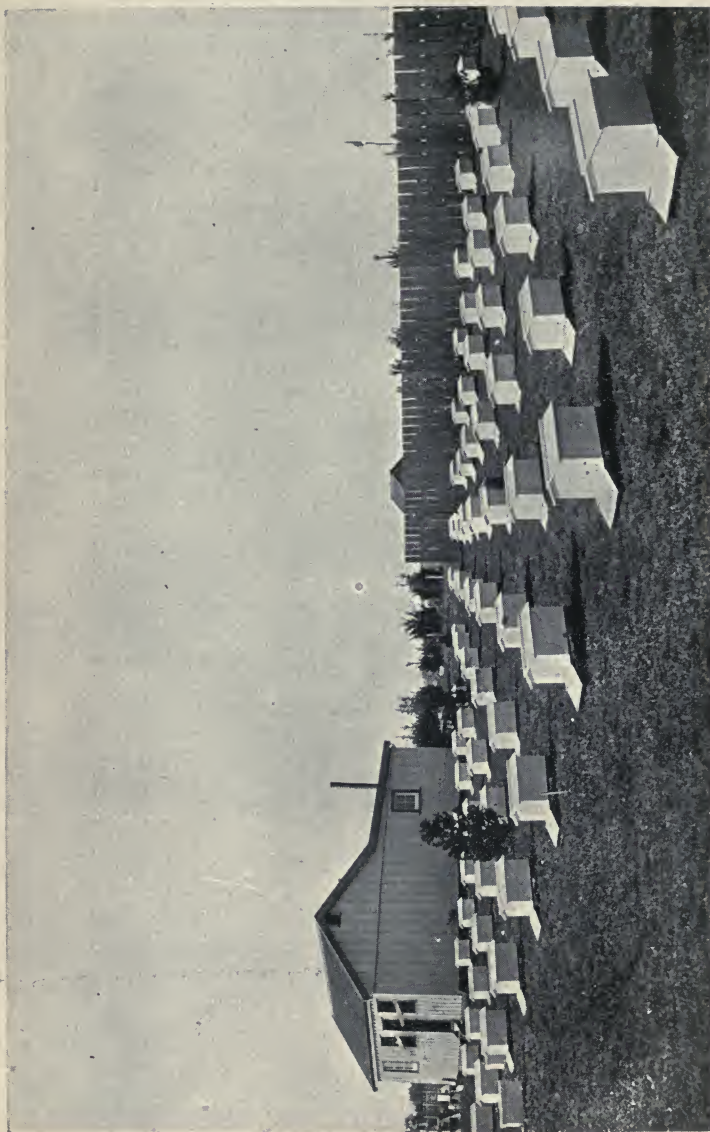
A COLLECTION OF APPLES.

Ag. in N.Z.]



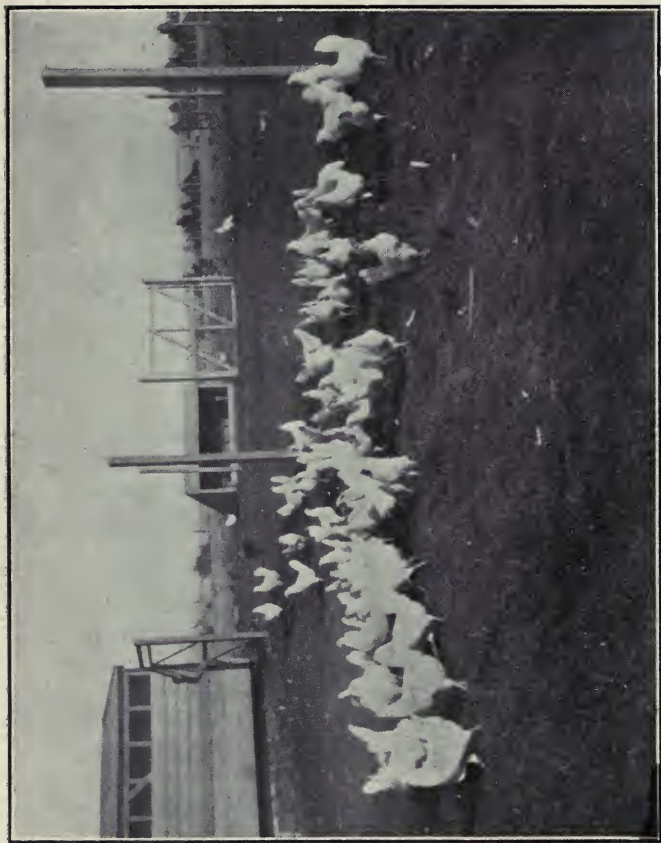
HARVESTING PEACHES, HAWKE'S BAY.

Ag. in N.Z.]



A MODEL APIARY.

Ag. in N.Z.]



A POULTRY FARM.

Ag. in N.Z.]

of excellent quality and packing. The production of early grapes and tomatoes under glass is an enterprise of considerable magnitude.

Excellent wines are produced in the Hawke's Bay and Auckland districts, and on a smaller scale in several other localities. Instruction in wine-making is given to grape-growers, and experiments in the best varieties of grapes and methods of treatment are carried out at the northern experiment stations.

Cider of superior quality is made, and this wholesome beverage is steadily gaining in popular favour.

It is estimated that the fruit-production of the Dominion has an annual value of at least £1,000,000.

BEEKEEPING has not hitherto taken a prominent place in farming in New Zealand, but the fostering care of the Government has lately been extended to the industry, and rapid development is in progress. The last census showed that there were 15,000 beekeepers in the Dominion. The large fields of clover and other honey-bearing plants in the Dominion would furnish food for a vast number of honey-bees, and the honey from this source commands the highest price on the London market. A State apiary has been established at the Ruakura Experiment Farm, and an eminent authority on bee-culture has been appointed instructor, giving lectures and demonstrations throughout the Dominion.

POULTRY-KEEPING has recently been entered upon on systematic lines, with the result that both the meat and the egg-laying qualities of the stock have been greatly improved, and the movement is rapidly extending. At the census of April, 1906, the poultry in the Dominion numbered 3,191,604 head (including 752 ostriches), consisting chiefly of breeding-stock, and it is computed that the annual value of the poultry products of the Dominion is not less than £2,000,000. The climate and the cheapness of foodstuffs are much in favour of poultry-keeping, and profitable results are obtained, both where it is an independent enterprise and where it is an incidental of regular farming. There is an unlimited market in London for chickens and ducklings, and considerable quantities of fowls are exported to other countries. The Department of Agriculture gives instructions to settlers, supplies them with stock birds or settings of eggs of the most profitable strains from its poultry-breeding stations, and prepares poultry for export in the frozen state.

STATE ENCOURAGEMENT.

State aid is given to agriculture in New Zealand in the following forms :—

- (1.) By maintaining a large staff of highly qualified scientists and experts to advise and instruct settlers **FREE OF CHARGE** on all points relating to farming practice, treatment of stock (including advice in cases of disease), dairying, fruit growing and preserving, poultry-keeping, beekeeping, hemp cultivation and dressing, wine-making, and other industries; and also supplying analyses of soils, seeds, and fertilisers, identification of plants and weeds, and other services.
- (2.) By providing qualified inspectors of all meat, and graders of butter, cheese, hemp, poultry, and eggs, intended for export, the quality of the exports being thus maintained at the highest standard.
- (3.) By the establishment of numerous experiment farms and stations at which various plants, methods, and processes are tested, and instruction is given to farmers.
- (4.) By the importation and breeding of high-class horses, cattle, sheep, pigs, poultry, and other stock for the improvement of settlers' stock.
- (5.) By the publication of bulletins, reports, and leaflets for free distribution for the information of settlers, and by the collection and publication of statistics regarding crops, flocks, herds, exports, &c.
- (6.) By legislation in the interests of agriculture.
- (7.) By appointing special commissioners to endeavour to open up new markets for New Zealand produce in all parts of the world with which there is a prospect of trade.
- (8.) By providing cheap money for the improvement and development of holdings.

A scheme of agricultural education is under the consideration of the Minister for Agriculture. Meantime an admirable system of education in scientific and practical agriculture, with special relation to stock-farming, is provided at the Canterbury Agricultural College, Lincoln, near Christchurch, a self-governing institution specially endowed by the founders of the Province of Canterbury.

The elementary principles of agriculture and horticulture are taught in the primary schools of rural districts and illustrated in plots in the school-grounds. Skilled instructors convey the requisite knowledge to the teachers of the schools and direct the cultural operations.

A limited number of cadets are received at the experiment farms and stations, and instructed in practical agriculture (including the management of pedigree stock and dairy cattle), fruit-growing, poultry-keeping, beekeeping, &c.

A dairy school, for scientific and practical instruction in butter and cheese making, is about to be established.

The following Acts are administered by the Department of Agriculture, whose work, it will be seen, is of a very wide scope :—

“ The Agricultural and Pastoral Statistics Act, 1895.”

“ The Apiaries Act, 1907.”

“ The Birds Nuisance Act, 1902.”

“ The Dairy Industry Act, 1898.”

“ The Fertilisers Act, 1904.”

“ The Noxious Weeds Act, 1900.”

“ The Orchard and Garden Pests Act, 1903.”

“ The Products Export Act, 1903.”

“ The Rabbit Nuisance Act, 1882,” and amendments.

“ The Slaughtering and Inspection Act, 1900.”

“ The Stock Act, 1893,” and amendments.

THE LAND SYSTEM.

The Crown lands of New Zealand can be leased or purchased under a variety of forms of tenure, particulars of which are given in the publications of the Lands Department. A large area of Crown land of all classes is open for selection at prices varying according to the class, situation, &c., of the land.

Under the Land for Settlements Acts numbers of eligible estates, ranging from highly improved agricultural to good pastoral land, are from time to time purchased by the State, divided into holdings of suitable size, and leased at annual rentals covering the cost of purchase, surveying, roading, &c. The settlers under this system are almost without exception in a most prosperous position.

Freehold land, the property of private owners, is always for sale in extensive choice. The prices have recently advanced con-

siderably, as the capabilities of the land have become known, but still afford generally a fair margin for profitable return on capital invested and cost of working.

SOCIAL.

Farm life in New Zealand has many attractions. It offers to the industrious and capable settler the certainty of acquiring in a few years a competency which will enable him to give his family a good start on a similar career, or to take his ease for the rest of his life. It is healthful and independent. With the rapid advance of closer settlement, social, religious, and educational facilities are within every one's reach. Recreations, such as shooting, fishing, and outdoor amusements generally, are also near at hand : and domestic life is marked by cheerful, unostentatious hospitality. The settler who goes into the "backblocks" may have to endure some hardships for a time, but his ultimate reward will be correspondingly great. The progress of agriculture and settlement, though it has been remarkably rapid and substantial, has scarcely more than begun and it is open to all to share in the prosperity which attends such progress.



New Zealand

Department of Agriculture.



HEAD OFFICE:
WELLINGTON.

Correspondence on matters of Administration should be addressed to the Secretary.

Correspondence on any special subject should be addressed to the Chief of the Division in charge of the subject regarding which information is offered or desired (see inside front cover).

UNIVERSITY OF CALIFORNIA LIBRARY,
BERKELEY

THIS BOOK IS DUE ON THE LAST DATE
STAMPED BELOW

Books not returned on time are subject to a fine of 50c per volume after the third day overdue, increasing to \$1.00 per volume after the sixth day. Books not in demand may be renewed if application is made before expiration of loan period.

JUL 22 1921

MAY 28 1947

OCT 13 '48 RF

YB 45394

S471

N5A3

274349

New Zealand.

UNIVERSITY OF CALIFORNIA LIBRARY

